

AMENDMENTS TO THE CLAIMS:

The following listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously presented) An isolated nucleic acid molecule comprising a neocentromere, wherein said neocentromere comprises a region of an eukaryotic chromosome and does not have any detectable alpha satellite DNA as determined by fluorescent in situ hybridisation (FISH), wherein said nucleic acid molecule comprises SEQ ID NO: 3, and wherein said nucleic acid molecule, when introduced into a cell, is capable of replicating, acting as an extra-chromosomal element and segregating with cell division.
2. (Previously presented) The isolated nucleic acid molecule according to claim 1 wherein the eukaryotic chromosome is a mammalian chromosome.
3. (Previously presented) The isolated nucleic acid molecule according to claim 2 wherein the chromosome is a human chromosome.
4. (Previously presented) The isolated nucleic acid molecule according to claim 2 wherein the nucleic acid molecule binds to centromeric binding proteins (CENP)-A and -C or antibodies thereto.
5. (Previously presented) The isolated nucleic acid molecule according to claim 3 wherein the chromosome is human chromosome 10.
6. (Previously presented) The isolated nucleic acid molecule according to claim 5 wherein said neocentromere comprises a region mapping between q24 and q26 on said human chromosome 10.
7. (Previously presented) The isolated nucleic acid molecule according to claim 3 wherein said human chromosome is a mardel (10) chromosome.
- 8-14. (Cancelled)

15. (Previously presented) The isolated nucleic acid molecule of claim 1 wherein said nucleic acid molecule is in linear form and co-introduced into a cell together with a telomeric sequence.
16. (Previously presented) The isolated nucleic acid molecule according to claim 15 wherein the eukaryotic chromosome is a mammalian chromosome.
17. (Previously presented) The isolated nucleic acid molecule according to claim 16 wherein said nucleic acid molecule binds to CENP-A and CENP-C antibodies.
18. (Previously presented) The isolated nucleic acid molecule according to claim 16 wherein the mammalian chromosome is human chromosome 10.
19. (Previously presented) The isolated nucleic acid molecule according to claim 18 wherein the neocentromere comprises a region mapping between q24 and q26 on said human chromosome 10.
20. (Previously presented) The isolated nucleic acid molecule according to claim 15 wherein said chromosome is a human mardel (10) chromosome.
- 21-39. (Cancelled)
40. (Previously presented) A genetic construct comprising an origin of replication for a eukaryotic cell and the nucleic acid molecule of claim 1, operably linked to telomeric nucleotide sequences functional in the cell in which the genetic construct is to replicate and wherein said genetic construct, when introduced into a cell, is a replicating, extra-chromosomal element which segregates with cell division.
41. (Previously presented) The genetic construct according to claim 40 wherein the eukaryotic chromosome is a mammalian chromosome.
42. (Previously presented) The genetic construct according to claim 41 wherein the eukaryotic chromosome is a human chromosome.

43. (Previously presented) The genetic construct according to claim 42 wherein the nucleic acid molecule binds to CENP-A and -C or antibodies thereto.
44. (Previously presented) The genetic construct according to claim 43 wherein the neocentromere is from human chromosome 10.
45. (Previously presented) The genetic construct according to claim 44 wherein the neocentromere comprises a region between q24 and q26 on said human chromosome 10.
46. (Previously presented) The genetic construct according to claim 44 wherein said chromosome is a human mardel (10) chromosome.

47-74. (Cancelled)